# THE WORK OF THE UNITED STATES PUBLIC HEALTH SERVICE

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FEDERAL SECURITY AGENCY

UNITED STATES PUBLIC HEALTH SERVICE

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*to the*

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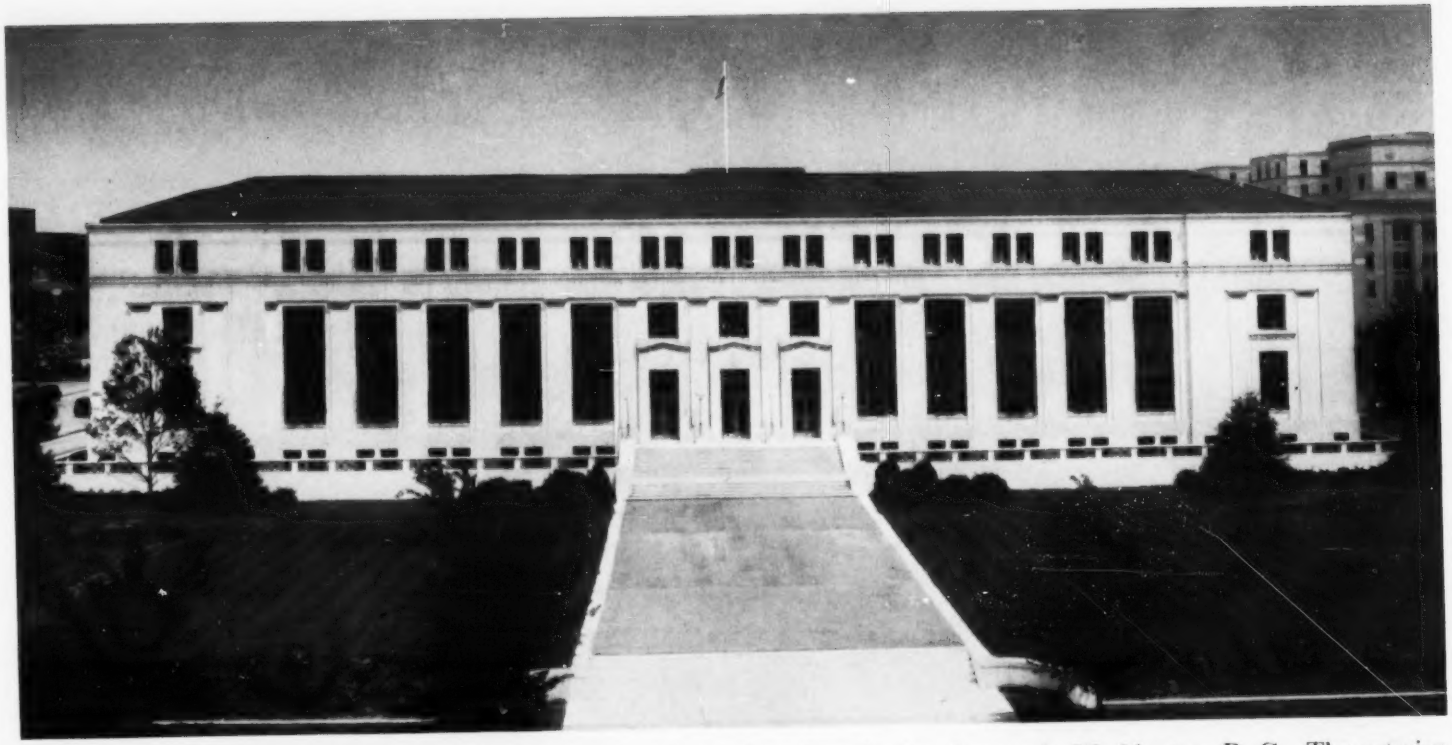


The administration building of the Public Health Service is located on Constitution Avenue in Washington, D. C. The exterior of the structure is of white Georgia marble. In addition to office space, the building houses an auditorium, library, exhibit room and dental clinic.

# THE WORK OF THE UNITED STATES PUBLIC HEALTH SERVICE[1]

As PERSONAL WELL-BEING appears to many people to be a matter solely of individual and personal concern, it is frequently a little difficult to convince a citizen living on the Pacific coast that his health is affected by the activities of an agency of the Federal Government 3,000 miles away. In fact, save in times of epidemic, the average citizen is likely to take little interest even in the activities of his local health officials, to say nothing of those of the State or Nation. When there is an outbreak of some contagious disease in his community, however, he becomes intensely interested in methods of preventing the spread of the contagion; but when the outbreak has abated, this interest wanes, to be revived by another outbreak at some later date.

"In time of peace, prepare for war," was the advice of one whom the world generally concedes to have been wise; and it is advice which can be adapted profitably to the work of those charged with the protection of that vital but rather nebulous thing called public health. Preparation for war in the political and military sense does not mean merely storing up supplies of arms and munitions such as were used in the last war. If it did, modern nations would be using clubs instead of tanks, and bows and arrows instead of poison gas and heavy artillery. Preparation for war means constant efforts to improve weapons and constant diligence to prevent the outbreak of hostilities;

[1] Revision of Reprint No. 1128.

or, if the latter is impossible, then an effort so to localize the outbreaks as to reduce the enemy's potentialities for damage to a minimum.

It is the duty of public health authorities not only to fight epidemic and other diseases while they are actually present, but to devise means of preventing them. This is the reasoning back of the elaborate and far-flung system of disease prevention and control which, in the aggregate, is the United States Public Health Service. To bring about a reduction in disease prevalence is the primary object of public health work.

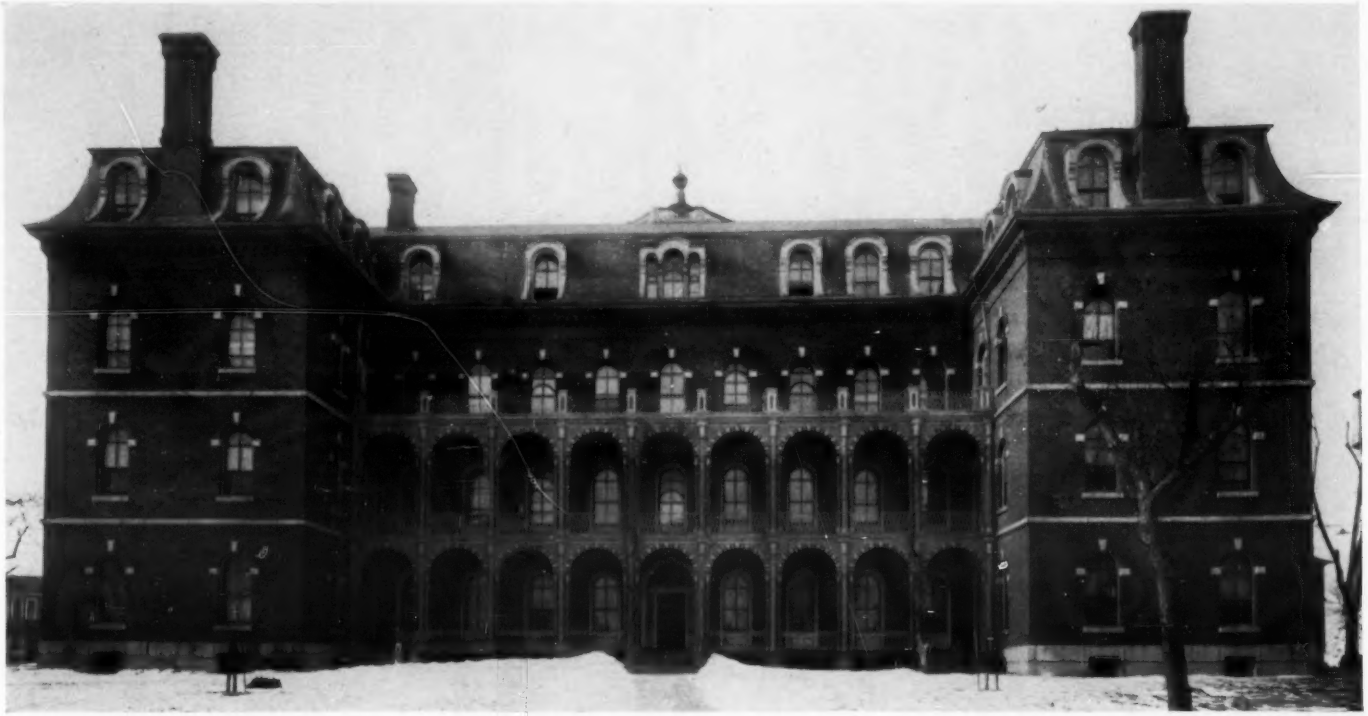
In carrying out its duties the Public Health Service employs more than 8,000 [2] men and women, and expends appropriations aggregating approximately $14,000,000 annually, exclusive of funds appropriated for grants-in-aid to States and allotted by the Service.

The organization now known as the United States Public Health Service had its origin in the Marine Hospital Service, which was established by an act of Congress approved July 16, 1798. This act authorized the President to nominate and appoint medical officers to furnish medical treatment and hospital care for sick and disabled seamen at such ports and other places in the United States as presented needs for services of this nature. It was provided that this care might be given either in hospitals maintained by the United States or in civilian institutions with which contracts might be negotiated.

A tax of 20 cents per month collected by collectors of customs, of the Treasury Department, from all seamen employed on American vessels engaged in foreign and coastwise trade was the method prescribed by the early legislators for financing this hospital service, forerunner of the United States Public Health Service.

The first treatment furnished seamen by the Marine Hospital Service was given in Boston early in 1799. The first marine

[2] In addition there are approximately 5,800 State and local health officers employed at a nominal salary by the Federal Government to aid in the collection of morbidity reports and in other ways.



This is the third marine hospital to have been built in Boston, Mass., and shortly to be abandoned in favor of a new and modern institution. The first marine hospital in Boston furnished care and treatment for sailors of some of the famous war sloops and frigates in the War of 1812.

hospital operated under the authority of the act of 1798, located at Norfolk, Va., was purchased from the State of Virginia in 1801.

In 1803 a marine hospital was built at Boston, and in the years following, other marine hospitals were established, both along the Atlantic seaboard and along the Mississippi and Ohio Rivers and on the Great Lakes.

In caring for sick and disabled seamen in American ports, the medical officers appointed to serve in these early marine hospitals necessarily became familiar with the diseases brought into the country from abroad. It frequently happened that these medical officers were the first physicians to diagnose such diseases as cholera, yellow fever, and smallpox, which threatened the health of ports of entry. This was particularly true in southern ports, then exposed to frequent dangers from outbreaks of yellow fever.

During epidemics in the early days, the Marine Hospital Service frequently received presidential authorization to aid local health authorities in relief and control measures. The marine hospitals, and some of the medical personnel as well, were used by both the North and South during the Civil War for the care of the military forces.

Gradually, Congress began to extend the functions of the Marine Hospital Service, and to make of that organization a Federal health service. In 1878 the Service was given authority to impose quarantine to prevent the entry of disease into the United States from abroad. It was not until 1890 that specific authority was given to impose quarantines to prevent interstate spread of disease, and then the authority was limited to the prevention of cholera, yellow fever, smallpox, and plague. In 1893 this authority was extended to cover all infectious and contagious diseases, and provision was made for cooperation with State and municipal health agencies to prevent the introduction and interstate spread of such diseases.

Congress soon recognized the value of military discipline in

an organization which had to combat epidemic diseases, and in 1889 it authorized the organization of the Marine Hospital Service along military lines, with officers holding commissions in grades similar to those of officers of the medical department of the Army.

In 1902 the name of the organization was changed to "The Public Health and Marine Hospital Service," and in 1912 this name was changed to that now borne by the Service.

While the public health functions of the Service had their inception in the prevention of the introduction and spread of quarantinable diseases, their development was largely the result of changes in public opinion. Investigative functions began with inquiries into the causes of such diseases as yellow fever and cholera. In 1901 Congress authorized the building of the Hygienic Laboratory for the investigation of infectious and contagious diseases, and in 1912 authorization for such research was extended to include all diseases of man and conditions influencing the propagation and spread thereof. This field of work has proved so important and profitable in results that in 1930 Congress increased the facilities for research, provided for the acceptance of unconditional gifts and bequests for the study of the fundamental problems of disease, authorized the appropriation of $750,000 for additional buildings and equipment, and changed the name of the Hygienic Laboratory to the National Institute of Health. Today this institution is recognized as one of the foremost research centers of the world. Construction was begun in 1938 on a series of new buildings to house the National Institute of Health, to be erected on a tract of land near Bethesda, Md., donated for the purpose. The facilities to be provided will materially enlarge the physical means for attacking the many public health problems under study at the Institute.

The health provisions of the Social Security Act, approved August 14, 1935, provided for expansion of cooperative activities with the States and authorized increased appropria-

The National Institute of Health, Bethesda, Md.

tions for the investigation of disease and problems of sanitation. Under the authority of this act, research is being expanded and intensified, State and local health departments are being strengthened, and a modern Nation-wide public health program is being promoted.

Means for renewing the attack upon cancer were provided by the National Cancer Institute Act, signed by the President on August 5, 1937. The National Cancer Institute is administered as a division of the National Institute of Health. Grants-in-aid have been awarded to universities and research institutions to be used in carrying on investigations in regard to cancer, research fellows and trainees as cancer specialists have been appointed, and efforts have been initiated to cooperate with State health agencies in cancer-control activities. Funds have been provided for the purchase of radium to be distributed to institutions approved by the National Cancer Institute as cancer-treatment centers, and studies on the incidence, causes, and treatment of cancer are being carried on.

The Venereal Disease Control Act, signed by the President on May 24, 1938, established the movement to control syphilis and gonorrhea in the United States on a permanent, national basis. This legislation authorizes the appropriation of 3 million, 5 million, and 7 million dollars for the fiscal years 1939, 1940, and 1941, respectively, and thereafter such sums as may be deemed necessary to carry out the purposes of the act. Funds have been made available for assisting States and political subdivisions of the States in establishing and maintaining adequate measures for the prevention, treatment, and control of the venereal diseases, and for the purpose of making studies, investigations, and demonstrations to develop more effective measures of prevention, treatment, and control of the venereal diseases, including the training of personnel. The Venereal Disease Control Act makes possible a continuous scientific, coordinated attack which undoubtedly will materially reduce

the incidence of syphilis and gonorrhea in the United States within the next decade.

Under the authority conferred by Congress in these three acts, the modern concepts of public health, new ideals, and new goals, which involve an expansion of the field of activity and an increasing Government responsibility in matters of health, are crystallizing into a modern cooperative, but unified, national health program. In this transition to a modernized health program, however, the Public Health Service has not discarded its earlier activities effective in the protection of the health of the people. The older basic preventive measures, such as quarantine and environmental sanitation, have by no means been discarded; the application of these measures still forms a part of the work of the Public Health Service, although they too have felt the influence of and been adapted to the latest scientific knowledge and administrative procedures.

The functions of the United States Public Health Service may be summarized as follows:

1. The protection of the United States from the introduction of disease from without.
2. The medical examination and inspection of all arriving aliens and prospective immigrants.
3. The prevention of interstate spread of disease and the suppression of epidemics.
4. Cooperation with State and local health authorities in public health matters.
5. Investigation of the diseases of man.
6. The supervision and control of biologic products.
7. Public health education and dissemination of health information.
8. The maintenance of marine hospitals and relief stations for the care and treatment of certain beneficiaries prescribed by law.
9. The confinement and treatment of persons addicted to the use of habit-forming narcotic drugs who have committed

offenses against the United States and of addicts who voluntarily submit themselves for treatment.

10. The study of mental diseases and drug addiction and investigation of the legitimate needs for narcotic drugs.

11. The providing of medical service in Federal prisons.

One of the functions exercised by the Service—that of supervision and control of biological products—is of particular importance in both the prevention and treatment of disease. Before viruses, vaccines, therapeutic serums, toxins, antitoxins, and analogous products applicable to the prevention and cure of diseases of man can be sold in interstate commerce, the producing establishment is inspected and the product is tested to see that it meets the required standard set up by the Public Health Service in accordance with law. The value of such products supervised by the Service in one year is well over $12,000,000.

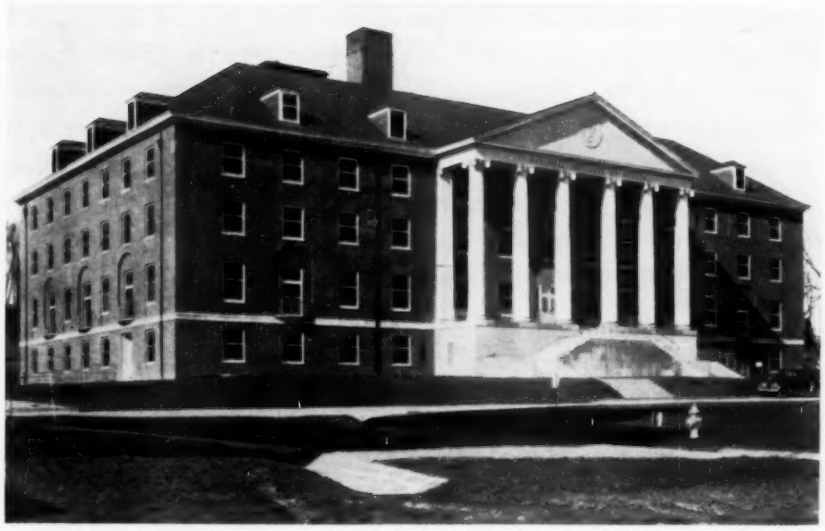
As organized at present, the Surgeon General administers the affairs of the Public Health Service through eight administrative divisions. These are as follows: The National Institute of Health, the Division of Marine Hospitals and Relief, the Division of Foreign and Insular Quarantine, the Division of Domestic Quarantine, the Division of Sanitary Reports and Statistics, the Division of Venereal Diseases, the Division of Mental Hygiene, and the Division of Personnel and Accounts.

# *National Institute of Health*

THE QUEST FOR HEALTH is as old as written history; and yet, despite the ravages of disease and the surge of widespread and recurring epidemics, man accomplished little to alleviate his condition until modern times. It was not until the advent of bacteriology, based upon Pasteur's classical experiments on fermentation about the middle of the nineteenth century, that man attained a scientific approach to the problems of health and disease.

In the field of infectious diseases alone, medical research, systematically conducted, has produced results of such direct application as to banish all fear of a recurrence of widespread epidemics of such diseases as yellow fever, plague, smallpox, cholera, and typhus fever, plagues which for centuries took their toll from defenseless populations.

Within recent years the death rate has been so reduced among infants and children, and preventive measures and therapy have been so improved, that the life expectancy of the average American has risen from approximately 43 years in 1890 to 62 years in 1938. But there are many problems yet to be solved. As examples among scores may be mentioned virus diseases, the sanitation of workshops and factories, malignant growths, the chemotherapy of bacterial diseases, nutrition in its many aspects, improvements in biological preparations, occupational diseases with particular reference to those of industrial origin, the development of better methods of handling group health matters, food and drug toxicology including sensitization diseases, and ailments affecting persons over fifty. Aside from matters pertaining to disease as such, there are fascinating problems concerning health itself, embracing



The Administration Building of the National Institute of Health at Bethesda, Md., near Washington, D. C., is representative of the style of architecture of the six new buildings which constitute the research center of the Public Health Service.

genetics, inheritance, longevity, vitality, and natural resistance—the underlying reasons why many persons live to an advanced age of physical or mental activity despite every indication of an early demise.

A great amount of research into cause and treatment of disease is carried on by private agencies; yet there are compelling reasons why the Federal Government must be represented in this field. The Government, being interested in the welfare of the entire population, concentrates its efforts upon problems affecting large groups of people, and upon preventive rather than curative methods. Prevention must always be the first job of public health; but certain conditions which cannot be prevented, and which for various reasons are of public concern, are matters of public health interest and attention.

The National Institute of Health originated in 1887 as a small laboratory attached to the Marine Hospital in New

York. This laboratory was transferred to Washington in 1891, where it functioned under the name of the Hygienic Laboratory. In 1901 Congress appropriated funds for a laboratory "for the investigation of infectious and contagious diseases, and matters pertaining to the public health." From time to time Congress made further appropriations for buildings and for enlarging the scope of the work; and in 1930 an act of Congress changed the name of the "Hygienic Laboratory" to the "National Institute of Health."

In 1937 Congress enacted legislation for the establishment of a National Cancer Institute to provide for, foster, and aid in coordinating research relating to cancer. This organization is administered as a part of the National Institute of Health.

### FUNCTIONS

As provided by Congress, the function of the Institute is "the investigation of infectious and contagious diseases, and matters pertaining to the public health." Generally speaking, under this broad mandate it is the function of the Institute to prosecute investigations concerning the health of our people at any time, in any way, in any place. The studies undertaken may be fundamental in nature or they may have immediate and direct application; they may be confined to a highly specialized branch of medicine, they may touch upon problems of sanitation, or they may involve related studies. They are limited only by the funds and personnel available, always bearing in mind that they must pertain to the public health.

### ORGANIZATION

The Institute is presided over by a Director, detailed by the Surgeon General from the regular commissioned medical corps of the Public Health Service, who is responsible for all activities of the Institute wherever located. In his absence, an assistant director automatically becomes acting director.

For administrative purposes the scientific work is aligned

into nine general groups according to fields of research, which are designated as divisions of the National Institute of Health. These divisions are as follows: Chemistry, biologics control, industrial hygiene, infectious diseases, pathology, pharmacology, public health methods, zoology, and the National Cancer Institute.

## RESEARCH ACTIVITIES

Suggestions of problems for investigation may originate from a wide variety of sources. They may arise because of a local epidemic or they may come from a physician, a layman, or a scientific organization. Often the Surgeon General orders a study of certain conditions or phases of health problems, and sometimes a research worker himself proposes an investigation. A glance at the medical and public health literature will suffice to give an idea of the innumerable problems confronting man in his struggle for health. The choice of a problem for study, therefore, resolves itself into a decision as to which of the many at hand may be prosecuted to the greatest advantage with the facilities available.

Having decided upon a problem for study, the director of the Institute assigns it to one of the research divisions, where it is given to a member of the staff especially fitted by training and personal qualifications for the particular type of research involved. The worker then proceeds with the investigations either alone or in conjunction with others, dependent upon the nature and scope of the research, reporting progress from time to time to the director. Staff scientists usually are left largely to their own resources as to methods of approach and means of procedure. As results are obtained, written reports are submitted to the Surgeon General, who may announce the facts to health authorities, physicians, and sanitarians.

The past has witnessed a considerable number of discoveries and the development of many facts, by Institute workers, of great value to our people. Some of these have caused the rewriting of medical and public health texts. To catalog them

would require several pages, yet it may not be amiss to cite a few of the accomplishments. For example, much of our knowledge of the so-called sensitization diseases is based on studies of anaphylaxis carried on at the Institute. The purity of biologic preparations is a direct contribution by the Institute to the people's health. Similarly may be mentioned the etiology and prevention of pellagra, hookworm disease, trichinosis, endemic typhus, Rocky Mountain spotted fever, tularaemia, and undulant fever. Studies of silicosis, of poisoning by the heavy metals, and of toxic gases and vapors have opened ways for protecting the health of industrial workers. The structure of sugars and their derivatives in relation to diet, milk and its relation to the public health, the disposal of sewage and industrial wastes, and nutrition are other fields of study from which facts of practical application have been derived.

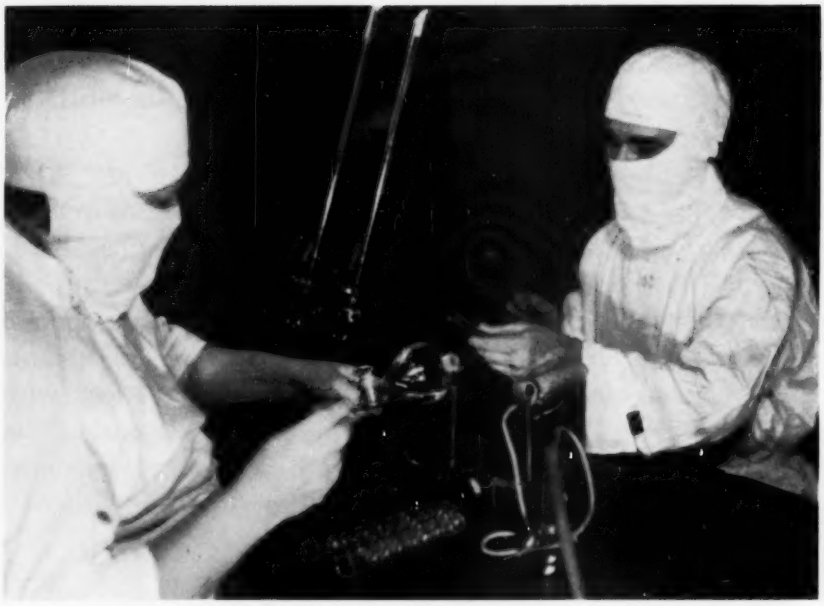
The following are some examples of the work now in progress at the Institute: Studies of vitamin deficiencies; rickettsial and virus diseases including choriomeningitis, poliomyelitis, and epidemic encephalitis; bacillary and amebic dysenteries; streptococci, with special reference to scarlet fever and the classification of the causative organisms; fundamental and active problems of immunity; medical protozoology; mycotic diseases and industrial dermatoses; meningococcus meningitis with special reference to evolving an improved serum; caries and mottled enamel of teeth; malignant tumors; selenium intoxication; bacterial chemotherapy; lead arsenate fruit sprays; caisson disease; enzyme researches; histopathology of diseases; rheumatic heart disease; the pollution of streams; child hygiene; and industrial hygiene and occupational diseases.

### CONTROL OF BIOLOGIC PRODUCTS

Under an act of Congress approved July 1, 1902, control over the production and sale of serums, vaccines, antitoxins, and analogous products for human use intended for interstate traffic is vested in the Secretary of the Treasury. The purpose of the

The Rocky Mountain laboratory is located in Hamilton, Mont. In this rugged country investigations are made of tick-borne diseases including Rocky Mountain spotted fever, tularaemia, Colorado tick fever and "nine-mile" fever. Large quantities of vaccine for immunization against Rocky Mountain spotted fever are prepared in this field laboratory.

The Public Health Service maintains an experimental pasteurization plant in which investigations are directed toward simplifying and perfecting measures for determining the effectiveness of commercial pasteurization.



Research requires meticulous care, not only for the accuracy of the experimental work but also for the protection of the workers.

act is to provide a method whereby the practicing physician may rest assured, when he administers a biologic remedy to a patient, that the product supplied to him by the manufacturer or druggist is as pure and, where standards are provided, as potent as it is humanly possible to make it. The act is enforced through a licensure system under which actual laboratory examinations of products are made at the National Institute of Health. Through the family physician this health provision intimately concerns every man, woman, and child in the country.

## PUBLICATIONS

Manuscripts pertaining to the work of the Institute are Government property and are published by authority of the Surgeon General. Publication may be made in Government organs or in scientific journals privately owned or published by professional associations. Authorship credit is carefully

guarded. Requests for publications of the Institute and information regarding its work should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

## FINANCES

Funds for carrying on the work are received from three sources: (1) An appropriation for maintenance of the laboratory and another for the control of biologic products annually provided by the Congress. (2) Allotments from the general appropriations for the Public Health Service; these allotments are of no fixed annual amount, but vary from time to time with the exigencies of work. (3) Gift funds. Under an Act of Congress approved in 1930, private individuals and organizations may contribute funds to the Institute for conducting its work.

## PERSONNEL

Workers at the Institute are recruited through two channels—by detail of medical officers from the regular commissioned corps of the Public Health Service and by appointment from lists of eligibles supplied by the Civil Service Commission which establishes the lists through competitive examination. Men and women are on an equal footing both as to work and pay; a considerable number of women occupy leading posts on the scientific and technical staff of the Institute. In addition to the permanent corps, which numbers about 700, there are 150 consultants whose services may be drawn upon from time to time for short periods. Pay ranges from $1,260 per annum for junior subordinates to $7,200 for research experts.

## DIVISION OF
# *Foreign and Insular Quarantine*

THE RIGHT of a community to protect the health of its members by excluding nonresidents afflicted with communicable diseases has been recognized and exercised since the dawn of history. So well established is this right that the principle has never been questioned in any of the countless controversies which have raged over its application to specific cases. Quarantines have been enforced as to individuals, cities, and nations by methods ranging from the religious taboos of the primitive races to the bayonets and warships of the modern and more materialistic peoples.

Geographically, the quarantines of antiquity and, indeed, up to modern times, were comparatively limited. The means by which the great scourge diseases were transmitted were not understood, and in many cases it was thought that so long as physical contact with the diseased persons was avoided the disease would not spread.

Two chief factors have combined to increase the geographic area of quarantines in modern times. The first is the discovery of the means whereby diseases are transmitted, and the second is the development of transportation by sea, land, and air which facilitates the transportation of diseases as well as persons and property.

Thus it comes about that all modern civilized nations now recognize the need for national quarantines and national agencies to enforce national quarantine regulations. The United States, due to the peculiar relationship between the individual States and the Federal Government, was one of the last of the great powers to have a national quarantine system in operation. In the early years of the Nation's existence the con-

tention was advanced (and upheld by the courts) that the imposition and enforcement of quarantine regulations was an exercise of the police power reserved to the States.

Quite early in its history the Public Health Service was authorized to cooperate with the State health authorities in quarantine matters. Gradually, the various States came to realize the advantages of a national uniform system for foreign quarantines, and one by one the State legislatures voluntarily relinquished that function to national authorities. The Public Health Service now administers the quarantine at all ports of the United States, and this work is done through its Division of Foreign and Insular Quarantine.

This Division has two major functions—(1) the prevention of the entrance of infectious and contagious human diseases from foreign countries into the United States, and (2) the medical examination of aliens applying for admission to the United States as immigrants. In the exercise of the first-mentioned function the division has jurisdiction over all ships and aircraft, and all persons, both citizens and aliens, coming into American ports from abroad. The second function, of course, has to do with aliens only. In the medical examination of immigrants the Public Health Service acts in an advisory capacity to the Immigration Service of the Department of Labor in ports of arrival in the United States and to the consular visa officers of the Department of State abroad.

The responsibility of the Public Health Service ceases with respect to an immigrant when it has certified to the immigration authorities as to his mental and physical fitness. On the other hand, the Public Health Service is solely responsible for the conduct of the quarantine work at the ports.

There are three lines of defense against the introduction of the quarantinable diseases, cholera, plague, yellow fever, typhus fever, and smallpox. The first line consists of the public health officers stationed abroad and working in cooperation with the consular officers to prevent such diseases in any form from being

Air view of the New York Quarantine Station, showing docks which form safe anchorage for quarantine boarding boats.

Since the institution of "radio pratique" the businesslike Diesel tug of the Public Health Service is not as likely to greet the passengers coming from a foreign land. However, when necessary it brings the quarantine officer and his assistants, the first to board incoming vessels requiring inspection.

transported on vessels bound to the United States; the second line is the system of quarantine inspection at the various ports of entry; and the third line is the cooperation between the Public Health Service and State and local health authorities not only at ports of entry, but throughout the country. Through this cooperation, control is maintained, not only over persons who may develop quarantinable diseases, but also over cases of other infectious or contagious diseases.

Methods of preventing the introduction of quarantinable diseases vary with the disease, as each spreads by different means and must be blocked accordingly. In the case of cholera, where the usual avenue of transmission is from person to person via the alimentary tract, the method is to prevent the entrance of any persons suffering from the disease. The work is complicated by the fact that certain persons are immune to cholera themselves but can carry the germs of the disease and transmit them to others. These persons, known as carriers, are more difficult to guard against than persons actually suffering from the disease, since the former may be entirely unaware of their condition. Cholera carriers are denied admission to the United States until they are noncarriers, and persons who have been exposed are detained long enough to determine whether or not they are infected.

### YELLOW FEVER

Yellow fever, once the scourge of the tropics and of our own Southern States, retreated from North America in 1905 and by 1930 was confined to a few small areas in South America and Africa; it was believed about to become extinct. This dream has been rudely shattered in the past 3 or 4 years by the discovery that the disease is maintained in an as yet unknown reservoir in the jungles of South America. In South America it is again on the march and may once more invade its former strongholds in Central America and the West Indies.

As formerly known, yellow fever was transmitted only by one

species of insect, a mosquito, the *Aëdes aegypti*, commonly known as *Stegomyia*. At present, in the Brazilian jungles, it is transmitted by at least two other mosquitoes, neither of which, however, invades urban communities. *Aëdes aegypti* breeds only in small collections of water and almost entirely in artificial containers near human habitations. Its range of flight is but a short distance from its breeding place, and the adults generally spend their lives in or near human habitations. On account of these circumscribed habits, this mosquito may be eradicated by carefully applied control measures. On the old sailing ships it would breed in the open water butts, thus maintaining an infestation throughout even a long voyage, but in present-day vessels the water supply is fully enclosed, and *Aëdes aegypti* are seldom seen on board more than a few days after a ship has left port.

Quarantine measures against yellow fever include detention of cases and exposed persons in mosquito-free quarters until all chance of transmitting infection is passed and fumigation of ships and airplanes to destroy any infected mosquitoes.

### PLAGUE

Plague, another quarantinable disease which claims its victims by the thousands in many parts of the world, is of two varieties—pneumonic and bubonic. The former, while very deadly, has occurred chiefly in Asia, only two small outbreaks having occurred in this country. The bubonic variety is an ever-present danger for nearly every port in the world. Just as yellow fever was found to be transmitted by the *Aëdes aegypti* mosquito, so it was found that bubonic plague is transmitted through the combined agency of rats and their fleas. The rats themselves are subject to plague; the fleas live on the rats until the latter die and then the fleas attack any warm-blooded animal, including man, and in biting pass the disease along. Fleas, however, specialize, and different animals have their own species that will live on no other animal except in emer-

The disinfection of vessels for the destruction of rats requires care and skill. In this illustration a fumigator is shown liberating discoids containing hydrocyanic acid into the hold of a vessel. To avoid personal injury from the powerful poison, the fumigators wear gas masks. Before the fumigant is placed in the hold, a search is made for persons sleeping or in hiding so that they may not be overcome by the lethal gas. As soon as the discoids have been emptied from the can, the tarpaulin will be drawn over the opening and battened down.

gencies. Thus, rats have several varieties; and while all of them theoretically can transmit plague, observations and experiments indicate that for practical purposes there is only one, or possibly two, species of fleas that need be considered. Periodic fumigation of ships to rid them of rats and fleas is one of the methods employed, but in its search for better methods the Public Health Service has developed the ratproofing of ships, which is an effective method for the control of this

danger. The Service has developed accurate inspection methods to determine rat infestation and now offers exemption from fumigation to any vessel maintained free of rats.

By reason of having regarded the elimination of the ship rat as the prime factor in the fight against transmission of plague and typhus fever, and by expending considerable effort in accomplishing this end, rat infestation of ships has been practically minimized, as only about 8 percent of all ships entering the United States ports are so infested at present. These achievements have permitted the institution, in February of 1937, at certain of the larger ports, of a system of radio pratique, applicable only to passenger ships carrying their own medical officer, and having a regular established schedule and itinerary. In that month, for the first time since the institution of the Federal system of maritime quarantine, a commercial vessel, after a foreign voyage, legally entered a United States port without being required to undergo inspection at the quarantine station.

### SMALLPOX

Smallpox has been one of the historic scourges of man for centuries. Since the discovery of vaccination, more than 140 years ago, the ravages of this disease have been curtailed to a remarkable degree, and it could be practically eliminated if vaccination were universal; but experience shows that neglect of this preventive measure is always followed sooner or later by a recrudescence of the disease in a community. Smallpox is combated at ports of arrival through the use of the immunity reaction, which indicates whether or not a person can contract the disease. This is a reliable method of determining whether a previous vaccination is still effective. Persons who have not been vaccinated or whose vaccinations are no longer active submit to another vaccination if they have been exposed to smallpox. No coercion is employed to induce persons to submit to vaccination, but if they are not vaccinated they must be detained in quarantine for 14 days.

### TYPHUS FEVER

Old World typhus fever is transmitted by body lice, which carry the disease from an infected to a well person. Hence, the method employed in fighting it is to destroy the lice. Just after the World War, when typhus was widespread in Europe, it was estimated that 3,000,000 persons died from it in 5 years. It was at this time that the trans-Atlantic steamship companies installed their delousing plants on advice of Public Health Service officers stationed abroad, and all persons arriving were bathed and disinfested, if not scrupulously clean. At present less than one-tenth of 1 percent of the persons arriving at American ports are found to be infested; and it is reported that on account of the requirements of the United States Public Health Service there has been a great improvement in conditions abroad, particularly in places where body lice had long been accepted as a matter of course.

### THE AIRPLANE

The advent of the airplane has brought new quarantine problems. Persons infected with yellow fever in South America may be brought to airports in the Southern States before they show signs of the disease. Similarly, persons infected with cholera in the Orient may land in Hawaii or even in California before the onset of the disease. Airplanes may transmit infected mosquitoes or may introduce unwanted species of insects. It is difficult to apply the usual quarantine measures to aircraft passengers, for detention destroys the one great asset of the airplane—speed. Fortunately, medical progress, keeping reasonable pace with mechanical progress, is supplying us with new weapons, such, for example, as an effective vaccine against yellow fever, and with their help the Public Health Service is actively at work developing new quarantine defenses.

Passengers arriving by airplane are examined with special care. Because of the speed with which the airplane comes from yellow fever infected territory, perhaps with infected passengers or mosquitoes, this mode of travel carries a special hazard to the United States.

Arriving persons found suffering from diseases in the quarantinable group are cared for in the Public Health Service quarantine station hospitals until danger of transmitting the disease to others is past; then, if they are American citizens, they are released. If they are aliens, they are released to the immigration authorities.

In cooperation with the Department of Labor and the Department of State, the Public Health Service, through its Division of Foreign Quarantine, conducts the physical examinations of all aliens arriving at United States ports. In many countries aliens are examined abroad under a system inaugurated in 1925, which has eliminated most of the heartaches and suffering of the old system and has excluded the unfit to an extent never before possible.

So far as physical condition is concerned, prospective immigrants are divided into three classes: Class A, those having defects which make them mandatorily excludable under the law; class B, those whose defects are not such as to make exclusion mandatory, but which may interfere with the applicant's ability to earn a living; and class C, those having minor defects which do not affect their ability to earn a living but which are noted, nevertheless.

## DIVISION OF *Domestic Quarantine*

### (STATES RELATIONS)

"QUARANTINE," by which is meant any forced stoppage of travel, communication, or intercourse on account of contagious or infectious diseases on land or by sea, was probably the earliest known method used to prevent the introduction of disease. Isolation and quarantine, in the sense of holding vessels and people until danger of disease was supposed to have passed, were naturally in use for centuries before the actual modes or methods for transmission of communicable disease were known, and during the colonial period each of the Colonies had more or less adequate provision for its protection from the introduction of exotic disease from abroad and from its neighbors.

When the United States came into being, with its unique system of balance between Federal and State powers, health matters, which were at that time universally regarded as police powers, were, by inference, left to the control of the several States. The control of foreign and interstate communication, however, was given to the Federal jurisdiction. Among the early laws passed in the first decade after the adoption of the Constitution were those enjoining Federal officials (Army, revenue cutter, customs, etc.) to assist the several States in the enforcement of their quarantine laws. With the introduction of the railroad and steamboat, with consequent increase in travel and communication, the necessity for coordinated effort was seen, and by consent of the States, and under the commerce clause of the Constitution, laws were passed providing for Federal control both of interstate and maritime quarantine functions.

The Domestic Quarantine Division of the Public Health Service came into being in 1910. While the functions of this division

were concerned, in the beginning, largely with measures for preventing the interstate spread of communicable diseases, it soon became apparent that the application of quarantine restrictions would not alone solve the problem, and that preventing the spread of disease from one State to another could be most effectively carried out by assisting the health authorities of the several States in preventing communicable illness at the source. Accordingly, the major emphasis shifted from quarantine procedure to aid to the States in developing and strengthening adequate State and local health organizations. The division, therefore, has come to be what may be more properly termed the States Relations Division of the Public Health Service. Its major functions may be summarized as follows:

1. Financial and technical aid to the States in the development and maintenance of State and local health services.
2. Control over water supplies used for drinking and culinary purposes on railroads, vessels, and other interstate carriers.
3. Cooperation with the States in the certification of interstate shellfish shippers.
4. Cooperation with other agencies of the Federal Government on matters of environmental sanitation.
5. Special cooperative activities with the States in the suppression of epidemic diseases, including bubonic plague, typhus fever, poliomyelitis, meningitis, and other communicable diseases.

### SANITATION

One of the activities of the Public Health Service in connection with interstate travel is the sanitary control over all water supplies used for drinking or culinary purposes on interstate carriers. It is obvious that this is a tremendous task. The water included in this description comes from more than 2,800 sources. Control over this supply from a sanitary standpoint is practicable only because of the cooperation given the Public Health Service by the State and city health authorities. There

are many indirect results from this function of the Public Health Service. It has been found that when the water supply of a certain city has been adjudged unfit for use on trains in interstate traffic, these cities are usually quick to improve their water supply. The local citizenry is prone to feel, and quite properly, that what is not good enough for the traveler passing through their city is not good enough for the home folks.

Sanitation in the national park reservations is a most important phase of the work of the Domestic Quarantine Division. Tourists from every State in the Union visit these parks each year, and if proper precautions were not taken the parks might easily become national focal points of disease distribution. Disposal of sewage and protection of water supplies are the principal subjects with which the public health officials have to deal in the national parks.

It was the Division of Domestic Quarantine which directed the investigation of the shellfish industry following an outbreak of typhoid fever attributable to infected oysters. The investigation resulted in the adoption of methods to prevent infection of the oysters through cooperation with the shellfish industry and State health authorities.

The ground squirrels of the Pacific and Mountain States have been found to be carriers of plague, and squirrel-free zones have been maintained around certain ports to prevent infected squirrels from coming in contact with city rats and causing an extensive plague infection—first of the rats, and later of human beings.

### HEALTH PROGRAM UNDER THE SOCIAL SECURITY ACT

As an outgrowth of the program carried on for the past 20 years in the field of rural health work, title VI of the Social Security Act authorized an appropriation to the Public Health Service of $8,000,000 annually, to be distributed to the States for the purpose of strengthening and extending State and local health services. Thus far the maximum appropriation has

been made annually, and the money has been allotted to the States and Territories on the basis of the following factors: (1) Population; (2) special health problems, including the training of personnel; and (3) relative economic need.

Before payment of these funds can be made, it is required that the State and Territorial health officers submit to the Surgeon General for approval their plans and budgets setting forth the purposes to which these funds are to be devoted. A review of these plans and budgets reveals the fact that they include every conceivable phase of health work. Some of the items which are most prominently featured are as follows: Immunization for the control of diphtheria, typhoid fever, and smallpox, pneumonia control, infant and maternal hygiene, general sanitation, milk sanitation, venereal disease control, malaria control, oral hygiene, and industrial hygiene.

The entire 48 States, the District of Columbia, and the Territories of Alaska and Hawaii are participating in the use of the grants-in-aid to States under title VI of the Social Security Act.

To supervise the expenditure of the grants-in-aid to States and to make more readily available such technical advice and assistance as may be desired by the States, five regional offices have been established, with headquarters at New York, Washington, Chicago, New Orleans, and San Francisco. Each regional office is under the direction of a medical officer experienced in public health administration, who has associated with him a highly qualified public health nurse, one or more sanitary engineers, and other specialized personnel.

## DIVISION OF
## *Sanitary Reports and Statistics*

It is a fundamental principle in any warfare that the success of the conflict depends not only upon methods of combat and adequate fighting facilities, but also upon our knowledge of the enemy—when, where, and in what numbers he may be found. And so in the fight against disease from a public health standpoint, whether it be municipal, State, national, or international, it is of fundamental importance that responsible officials have early, accurate, and complete knowledge as to the presence or absence of the important communicable diseases. In the absence of such knowledge there will be either a lack of vigilance, which may end in disaster, or, what is of vast importance in these days of commercial enterprise and rapid communication, there will be a futile and unnecessarily expensive outlay against a supposed danger which does not exist.

This fact has, within the past few decades, been demonstrated particularly in the matter of yellow fever. So long as infectible countries, such as ours, knew of the general existence of yellow fever but did not know the exact endemic centers of this disease, elaborate precautions had to be taken at our maritime quarantine stations against all yellow-fever suspected areas, whereas, at present, with our intelligence service, such precautions have been waived with benefit to commerce. A similar condition exists with reference to bubonic plague. With a knowledge of endemic centers and with control measures well developed, expensive delays to certain vessels at quarantine are now avoided.

The collection and dissemination of information concerning the prevalence of disease is of increasing importance in this age of speedy transportation facilities. For instance, it is possible that a person infected with typhoid fever may, even by motor, traverse the entire width of the country before the completion of the incubation period of this disease.

The Division of Sanitary Reports and Statistics of the Public Health Service may well be described as the intelligence office of the Federal health agency, whose compiled information, however, is used throughout the world by other governments, as well as by our own local and State agencies. Broadly speaking, the work of this Division has two general phases—first, the collection from all parts of the world, including our own country, of information having a bearing on the maintenance of public health, and, second, the dissemination of this information in such manner and to such persons and organizations as will make it most valuable. Between the collection and dissemination of information there is, of course, the very important work of compilation.

The information employed by the Division is secured from many sources, local, State, Federal, and international. To begin with, every consul and consular officer stationed abroad makes a weekly report to the Public Health Service as a part of his routine duties. The reports are made on forms provided by the Public Health Service and bearing a list of the more important communicable diseases. The consular officer obtains reports from health officials of the country to which he is accredited, and from these reports and such other sources as are available he fills in the information required on the form and mails it to the Public Health Service. These reports by mail include, among others, the following diseases: Cerebrospinal meningitis (epidemic); cholera, Asiatic; gastroenteritis; diphtheria; measles; plague, human; plague, rodent; polio-

myelitis (acute anterior poliomyelitis or infantile paralysis); scarlet fever; smallpox; tuberculosis; typhoid fever (enteric fever, typhus abdominalis); typhus fever (typhus exanthematicus); and yellow fever.

In cases where there is an outbreak of plague, cholera, yellow fever, or typhus fever in his territory, the consul promptly cables his information instead of mailing it. Owing to this method of transmitting information it occasionally happened in the past that a ship which had left a foreign port before one of these outbreaks reached an American port in ignorance of the fact, and the master of the vessel got his information concerning the disease from the American health authorities.

Cholera, plague, yellow fever, typhus, and smallpox are classified as quarantinable diseases. This means that when a ship reaches port from an area in which there has been an outbreak of one of them, or with a case of one of these diseases on board, special measures of disinfection and segregation are taken to prevent any spread of the contagion or infection in the United States. Special quarantine measures are also in force against leprosy and anthrax.

Reports from consular officials and Public Health Service officers abroad are the principal sources upon which the Public Health Service depends for what may be distinguished as its current information on world health conditions. In addition, however, the Service receives all of the bulletins and other documents issued by the health section of the League of Nations, the International Office of Public Health in Paris, and the Pan American Sanitary Bureau of Washington. Some of these reports, of course, are at least a month old when they reach the United States, but they are valuable records for statistical purposes.

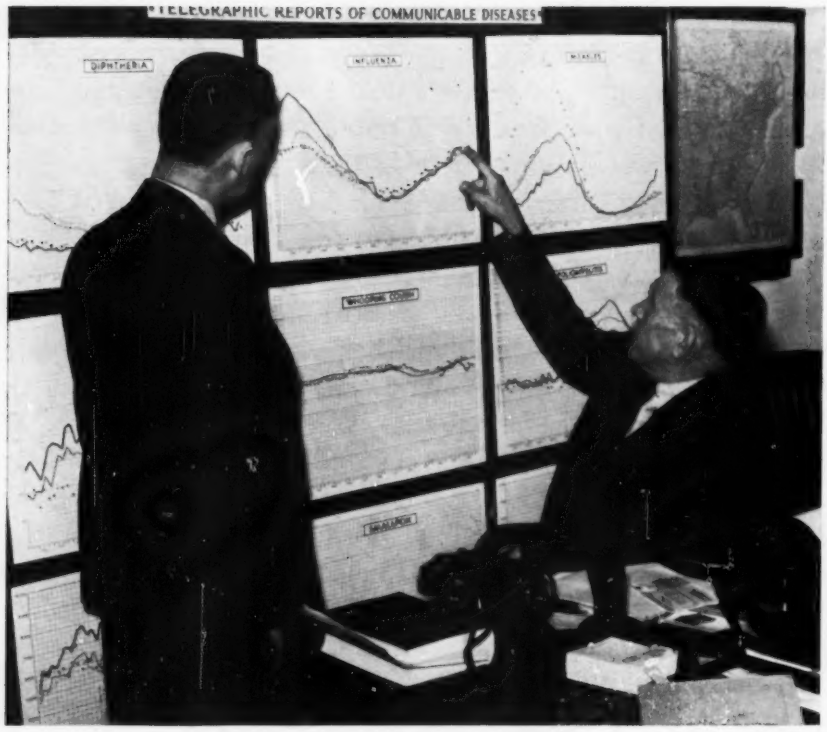
The United States has what are called sanitary treaties with all of the important nations of the world (International Sanitary Convention of Paris), as well as a regional agreement with Pan American countries (Pan American Sanitary Code).

These sanitary agreements, which have the force of treaties, provide for an international exchange of information relating to public health. This means that all of the signatory nations receive regularly all the data on public health gathered by the world-wide information system of the United States, this information being cabled in case of emergency conditions. This is of immense value to some of the small countries which do not have their own facilities for such purposes.

With reference to current health conditions in our own country, the Public Health Service receives weekly telegraphic reports from health officials of the various States relating to important communicable diseases. It is also kept informed of conditions by weekly mail reports from local health officials in about 600 cities of 10,000 or more population. These reports cover the prevalence for their respective territories of the following diseases: Chickenpox, diphtheria (carriers not included), influenza, measles, mumps, pneumonia (all forms), scarlet fever, smallpox, tuberculosis (all forms), typhoid fever, whooping cough, cerebrospinal fever, dengue, lethargic encephalitis, pellagra, poliomyelitis (infantile paralysis), rabies (in man) (developed cases), rabies (in animals), typhus fever. The local officials who send in these reports are classified as "assistant collaborating epidemiologists" of the Public Health Service and are paid $1 a year. Their reports are mailed postage free on Government penalty cards provided for that purpose.

These reports from city and State officials and from the consular officers abroad constitute the basis of the morbidity reports contained in Public Health Reports, which is issued weekly by the Public Health Service and sent to public health officials, sanitarians, libraries, and institutions throughout this country and abroad.

In addition to the tabular statements of domestic and foreign conditions indicating the state of public health, the Public Health Reports contains special articles on various phases of




Each communicable disease has an incidence pattern which is plainly discernible when morbidity reports are displayed in graphic form. By comparing current communicable disease reports (shown by pins on these charts) with "expectancy" curves it is possible to follow trends of disease prevalence. Telegraphic reports are received weekly from each of the 48 State departments of health.

public health work, articles reporting research, and abstracts of current court decisions relating to public health. It may be remarked here that the experience of many years indicates that the courts in nearly every instance apply the tests of common sense and reasonableness to acts of public health officials which come before them for review.

When there has been an outbreak of some particular disease necessitating special measures by the Service, in cooperation

with city and State health officials, it is the practice to include in the Public Health Reports an account of these activities.

### PUBLICATIONS

The editing and distribution of the Public Health Reports comprise one of the functions of the Division of Sanitary Reports and Statistics.

The Hospital News, a semimonthly collection of clinical reports from hospital personnel, reproduced by the multilith process, is also edited and issued regularly in this Division. The purpose of the Hospital News is to bring information regarding case histories, clinical research, practices, observations, and improvements in the marine hospitals to the attention of all hospital personnel. Its distribution is limited to Public Health Service personnel.

It may be asked: Of what use is all of this statistical and other health information? Some may doubt the value of informing a public health official in California of an epidemic of influenza in Massachusetts. But it is axiomatic in public health work that disease cannot be prevented unless the health officials know where, when, and under what circumstances communicable diseases occur.

The value of reports of this kind was strikingly demonstrated during the influenza epidemic a few years ago. The epidemic originated, so far as the United States is concerned, in Boston and spread westward across the country. It was found that public health officials in touch with the situation could predict almost to the day when cases of this disease would be reported in the Middle Western and Western States along the line of march of the "flu" bacillus. And to be forewarned of epidemics of this character is more than half the battle of controlling them.

The United States Public Health Service, through the Division of Sanitary Reports and Statistics, was the first organization to take up the idea of radio broadcasting of talks on health topics on a large scale. This service was inaugurated in 1921

and discontinued in 1932. The talks were prepared by medical officers of the Service and leading specialists of the United States and were broadcast from the naval station at Arlington, Va. Multigraphed copies of these broadcasts were sent to other broadcasting stations throughout the country, and frequently they were "put on the air" by those stations.

The Office of Health Education was established in this Division in 1936. It was originally concerned almost exclusively with the publication of The Health Officer and with a class for commissioned officers of the Public Health Service. Its work has recently been shifted to embrace the broader field of popular health education, including cooperation with voluntary health organizations and civic organizations on health education programs; planning the revision and wider distribution of nontechnical publications of the Service; development of graphic materials, including photographs, exhibits, posters, and motion pictures; and special educational projects.

The Health Officer is a monthly publication reproduced by the multilith process, about 3,000 copies of which are distributed to personnel of the Public Health Service, educational institutions and libraries, and to official and nonofficial health and welfare agencies. Original articles are contributed by officers of the Public Health Service, and special articles, book reviews, abstracts, and editorials are prepared in the Office of Health Education.

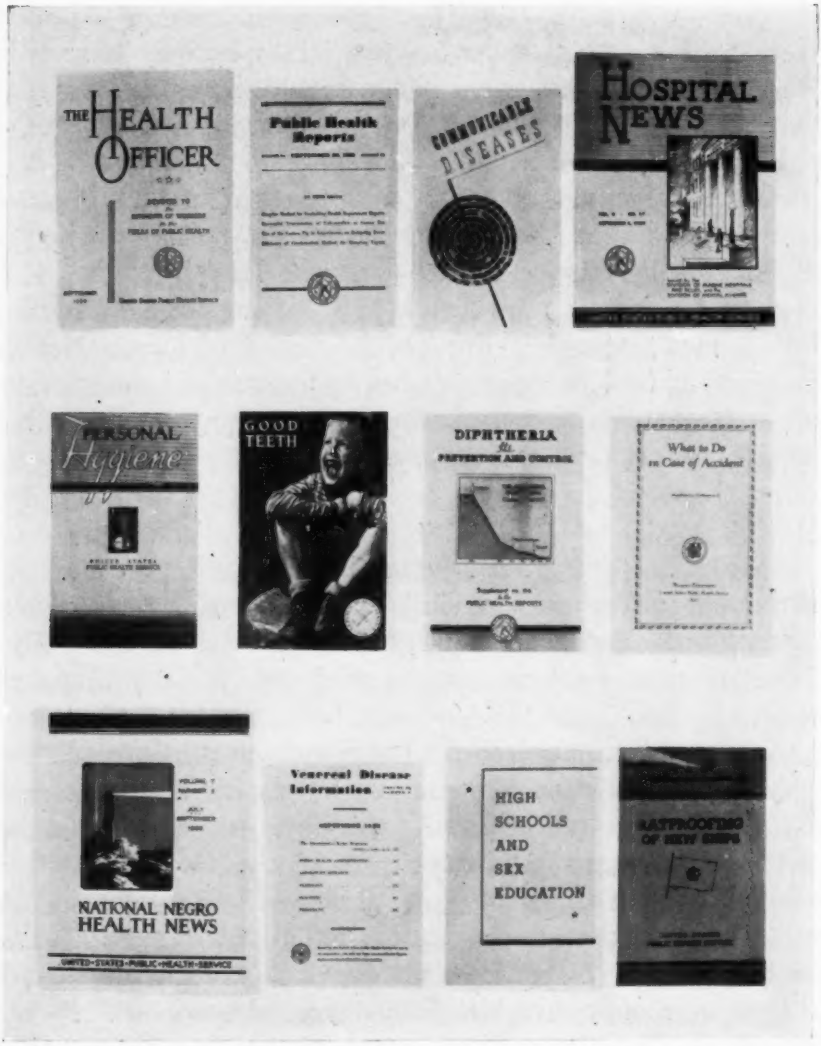
The Division cooperates in improving health and living conditions among the colored population through the Office of Negro Health Work. The National Negro Health Week Bulletin has been issued by the Public Health Service since 1921. Since 1932 the Service has furnished quarters and operating facilities for this office, and since 1934 a director and clerical assistant have been provided. Each year a National Negro Health Week is observed, during which community educational programs are presented. Health lectures, sermons, and radio talks are given; demonstrations, pageants, and motion pictures presented; physical examinations, health in-

structions, and medical services given. Civic leaders and others are encouraged to promote a year-round follow-up of Health Week plans. The National Negro Health News, a quarterly bulletin of health information for racial and interracial groups, published by the Office of Negro Health Work, has a wide distribution and stimulates continued interest in health and community sanitation. A poster and school leaflet are also published each year in connection with the Health Week. The field service, advice, and health publications provided by the Public Health Service through the Office of Negro Health Work contribute in large measure to the health consciousness of the Negro and his integration in the health programs of his particular State and community.

### HEALTH INFORMATION

Another function of the Division is handling the vast number of requests for literature and information on health topics which pour into the Public Health Service. The Service has nearly 2,000 different publications and over 400 specially prepared statements, which may be sent in reply to such requests. When a request comes in for information not supplied by any of these publications, an effort is made to refer the inquirer to sources from which he can obtain it. Inquiries on subjects falling within the scope of other agencies of the Government are referred to those offices for reply. Likewise, other departments and bureaus often receive requests for information which can be supplied by the Public Health Service. A regular system of interchange of such requests has been worked out. In the course of a year a total of approximately 350,000 separate pamphlets and letters are sent in response to individual requests for health information.

This Division also maintains a small exhibit room in the administration building. Here are displayed in graphic form the causes and effects of certain diseases with which the Public Health Service had has special experience.




The principal publications of the Public Health Service, some of which are edited in the Division of Sanitary Reports and Statistics. This collection includes both the regular periodicals and the casual publications.

## DIVISION OF
# *Marine Hospitals and Relief*

THE MARINE HOSPITALS were established by Congress in 1798. At that time, the Public Health Service was known as the Marine Hospital Service; the idea of a Federal health department was something entirely outside the ken of political thought in the infant Nation.

From time immemorial it has been the law of the sea that vessels must provide medical attention for seamen. Hence, to encourage the struggling merchant marine, Congress took this means to relieve the ships of this burden.

Thus it came about that some of the earliest institutions established by the Federal Government were marine hospitals, which antedated naval hospitals and, in the early days, took care of officers and men of the Navy. The first marine hospital in Boston, which, incidentally, was the first general hospital in that city, furnished hospital care for sailors from some of the famous war sloops and frigates of the War of 1812. The present marine hospital in Boston is the third in this port, the first and second having been abandoned in turn as they became obsolete.

The marine hospitals in the beginning were financed through a tax of 20 cents per month, later increased to 40 cents, deducted from the wages of each seaman and collected by the collector of customs. Subsequently this was replaced by a tonnage tax, which is still collected but goes into the general funds of the Treasury, and in turn direct appropriations out of the Treasury are now made for the support of marine hospitals. In 1884, the hospital tax of 40 cents per month was discontinued, but 50 years later aged sailors still sailing the seas and coming into the hospitals felt a proprietary

One of the newer marine hospitals, located at Seattle, Wash.

While originally intended for the care of sick and disabled merchant seamen the marine hospitals, of which the one in Baltimore, Md., shown here, is an example, now treat some 14 groups of legally designated beneficiaries.

interest in them and recalled that they helped build these institutions out of their own wages.

The earlier hospitals were primitive affairs according to modern standards. Medical knowledge has advanced greatly since 1798, and the marine hospitals have kept abreast of the time. Attending specialists augment the regular staff of

medical officers; trained nurses, professional dietitians, and skilled physiotherapy aides are employed. The medical and surgical work of the marine hospitals compares favorably with that of representative hospitals in the respective ports.

The 26 marine hospitals conducted by the Public Health Service are located in Baltimore, Md., Boston, Mass., Buffalo, N. Y., Carville, La. (the National Leprosarium), Chicago, Ill., Cleveland, Ohio, Detroit, Mich., Ellis Island, N. Y., Evansville, Ind., Fort Stanton, N. Mex., Galveston, Tex., Key West, Fla., Louisville, Ky., Memphis, Tenn., Mobile, Ala., New Orleans, La., New York, N. Y., Norfolk, Va., Pittsburgh, Pa., Portland, Maine, St. Louis, Mo., San Francisco, Calif., Savannah, Ga., Seattle, Wash., Staten Island, N. Y., Vineyard Haven, Mass. The Service also maintains contract facilities for hospital care in 130 cities where it is more economical to provide hospitalization by contract than to maintain a marine hospital.

The hospitals in general are modern institutions, those at Baltimore, Chicago, Cleveland, Detroit, Galveston, Louisville, Memphis, Mobile, New Orleans, Norfolk, San Francisco, Seattle, and Stapleton, having been erected in recent years. New marine hospitals now under construction in Boston and St. Louis will replace the old and inadequately equipped institutions at these places. Extensions have recently been made to the hospitals at Evansville and Vineyard Haven to provide modern surgical facilities.

Funds have recently been obtained for an addition to the marine hospital at Stapleton, Staten Island, to provide for over 300 additional beds, the complete rehabilitation of the marine hospital at Carville, the first step in connection with the proposed rehabilitation of the marine hospital at Fort Stanton, and an extension to the Baltimore marine hospital to provide a cancer research center. Plans and specifications for these projects are now being prepared and the work should be placed on the market in the early part of 1939.

The capacity of the 26 marine hospitals is approximately 6,200 beds.

Approximately 378,000 persons have applied annually for treatment at the marine hospitals and other relief stations during the past 5 years, and there are constantly between 5,000 and 6,000 patients in hospital. During the year ending June 30, 1938, there were furnished 2,004,154 patient hospital days and 1,460,798 out-patient treatments; 164,980 physical examinations were made for purposes not related to treatment, including the services rendered to the Civil Service Commission and other Government agencies. In the marine hospital laboratories 601,183 bacteriological and other clinical laboratory examinations and 198,938 X-ray exposures for diagnostic purposes were made.

Complete medical and surgical treatment, including physiotherapy and other special forms of treatment, is furnished at all marine hospitals.

Since 1919 dental care has been furnished to beneficiaries. In 1938, 748,209 dental treatments were given to the patients. In the matter of dental care of beneficiaries, the Public Health Service repeats the story of Mahomet and the mountain—if the beneficiaries cannot come to the dental clinic, then the dental clinic goes to them. A good many of these beneficiaries are stationed at outlying posts of the Coast Guard where dental treatment is not conveniently available. To care for this personnel the Public Health Service has provided two mobile dental units, housed in modern two-wheeled trailers. Each trailer carries a modern and complete dental unit, including patient's chair, instrument cabinet, sterilizer, X-ray, laboratory equipment, compressed air apparatus, running water, and electric lights. It furnishes service equivalent to that of a modern dental office.

The marine hospitals are open for free medical treatment to seamen from all classes of documented vessels, as well as from all Government vessels of 5 tons and upward, personnel of the

A completely equipped dental trailer, manned by a dental officer and an attendant-chauffeur, carries dental aid to light-house and life-saving personnel located at isolated stations.

Coast Guard, Lighthouse Service, and injured employees of the United States Government receiving care under the supervision of the Employees' Compensation Commission. The hospital at Ellis Island, New York City, is operated partly for detained sick immigrants. Free treatment is also extended to seamen and cadets in training aboard State school ships. Foreign seamen, beneficiaries of the United States Veterans' Administration, Army, Navy, and Civilian Conservation Corps, and dependent members of the families of commissioned and enlisted men of the Coast Guard are admitted and treated as pay patients.

### BENEFICIARIES

The classes of free beneficiaries are as follows:

1. Seamen from all American documented vessels and from vessels of the United States Government (other than those of the Panama Canal) if of more than 5 tons' burden, and seamen and cadets in training on State school ships.
2. Officers and enlisted men of the United States Coast Guard, active and retired.
3. Keepers and assistant keepers, United States Lighthouse Service, active and retired.
4. Injured Federal employees receiving care under supervision of the United States Employees' Compensation Commission.
5. Persons afflicted with leprosy, in sanatoriums at Carville, La., and in Hawaii.

Narcotics required for medicinal use on board any American or foreign ship in an American port are purchased or otherwise authorized by an officer of the Public Health Service in such amounts as are indicated by the medicinal needs.

The marine hospital at Fort Stanton, N. Mex., is exclusively for tuberculous beneficiaries suitable for treatment at a moderate altitude, the selection being limited to patients with favorable prognosis. Climate is regarded as less important now than when this hospital was established in 1899. The hospital

Tuberculous beneficiaries of the Public Health Service whose conditions are sufficiently favorable to warrant a sojourn in a location of moderate altitude are sent to the sanatorium (Marine Hospital) at Fort Stanton, N. Mex., for treatment.

is convenient for the prolonged care necessary to complete recovery of selected tuberculous patients. Paid employment is provided for those approaching fitness for discharge and as a means of testing their recovery.

At the marine hospital at Carville, La. (the National Leprosarium), there are approximately 350 patients under treatment. Since 1921 there have been 237 paroles granted. In 36 of these patients the disease has become reactivated and they have been returned to segregation. Present requirements for parole are absence of clinical evidence of active leprosy and a series of consecutive negative bacterioscopic tests at monthly intervals. Radio, baseball, moving pictures, a library, a school, and religious solace furnished by chaplains and chapels for Catholics and Protestants bring some measure of contentment to the inmates. Leprous patients who are physically fit are employed by the Government at nominal pay in light occupations at this institution, thus providing them with diversion and funds. All patients are clothed and otherwise well cared for at Federal expense.

In addition to the 26 marine hospitals, 117 relief stations of the second and third class are maintained along the seacoasts, lakes, and rivers of the United States and its possessions, for office treatment and emergent hospital care of beneficiaries. There are also under appointment approximately 100 special acting assistant surgeons whose duties are limited to the furnishing of emergent medical relief and the performance of physical examinations for the personnel of the United States Coast Guard and Lighthouse Service located at places which are inaccessible to any regularly established relief station or marine hospital.

It costs a little less than $7,000,000 per year to maintain the marine hospitals. The average cost of operation is approximately $3.50 per patient per day, which is considerably less than that of civilian hospitals furnishing equivalent services.

Starting out merely as an agency doing relief work for seamen, the Public Health Service has expanded and acquired manifold and varied functions. It was natural for quarantine duties to be added, together with other functions relating to the safety of ships and the welfare of their personnel. It became the agency which examines applicants for license as pilots and other ships' officers who must pass satisfactory tests for vision, color vision, and hearing. Lighthouse keepers are also required to pass similar examinations before they are appointed. The Public Health Service must also vouch for the physical ability of sailors qualifying as "able-bodied seamen," of which the crew of an American ship must have not less than 65 percent; and since ships' officers must be versed in first aid before being licensed by the Bureau of Marine Inspection and Navigation, courses of instruction have been organized in 48 ports where medical officers give the necessary instruction preliminary to examination of the candidates in this subject. All medical service for the Coast Guard is furnished by the Public Health Service, which also sends its medical officers with the cruising cutters on the Alaska seal patrol and the North Atlantic ice patrol, and wherever else these ships may go.

In addition to their relief functions, the marine hospitals may be considered as a part of the second line of defense behind the Foreign Quarantine Division in preventing the entry of quarantinable disease into the country. For example, a seaman in New Orleans applied to the marine hospital for treatment. It was found that he was suffering from bubonic plague. The quarantine officer was notified at once and the ship was fumigated to destroy the rats and fleas through which this disease is transmitted. No further cases occurred.

Since 1922 the marine hospitals have replied to radio requests for medical advice received from ships at sea. These messages are transmitted by the Coast Guard, Naval Radio, and commercial radio stations, free of charge. It occasionally

happens that medical advice thus given enables the master of the vessel to save a life or alleviate pain, and it frequently enables the ship to continue on its course instead of putting in at some unscheduled port with loss of valuable time and inconvenience to passengers.

Special problems in clinical research are being studied in the marine hospitals at Stapleton, Baltimore, and New Orleans.

# DIVISION OF *Venereal Diseases*

THE PROBLEM of venereal disease control has occupied the attention of the United States Public Health Service for many years. As far back as 1875 the annual report of the Surgeon General contained a number of recommendations for the prevention of the introduction of syphilis and gonorrhea into the United States and suggestions for the treatment of those already infected. However, it was not until the World War brought the country to a state of mind in which it was willing to look these problems squarely in the face that the Government began to assume its share of responsibility of informing the public frankly concerning the nature and prevention of venereal disease and the application of medical and other measures of control; and it was not until more recently that these diseases have received the attention in public health work that their importance justifies.

On July 9, 1918, Congress passed the Chamberlain-Kahn Act creating in the Public Health Service a Division of Venereal Diseases, and appropriating more than $4,000,000 for use during the 2 following fiscal years to carry out duties imposed by this act, which were as follows:

(1) To study and investigate the cause, treatment, and prevention of venereal diseases;

(2) To cooperate with State boards or departments of health in the prevention and control of such diseases within the States; and

(3) To control and prevent the spread of these diseases in interstate traffic.

A tremendous impetus was thus given to venereal disease control work as a result of the interest of the Public Health

An important part of the campaign against syphilis is the taking of blood samples for the performance of the Wassermann test. In this industrial center a temporary clinic has been established in an auditorium. Names, addresses, and other pertinent information are being recorded by the clerk on the right; the blood sample is taken by the doctors behind the screen; while at the top left of the picture the technician is demonstrating to a group of interested persons how the test is made.

Service in this movement. During the first 12 months after the passage of this act every State in the Union except four was prosecuting vigorous measures in accordance with the cooperative plan outlined by the Public Health Service.

Inevitable economic readjustments following the war had an adverse effect upon venereal disease control. Federal appro-

priations dwindled to $59,000 in 1935. Impetus for the program died quickly. With a few exceptions, State and local governments were doing practically nothing. The activities of the Public Health Service were curtailed to a few important research problems.

The year 1936, however, brought a revival of interest in the problem of venereal diseases. The new movement begun by the Surgeon General achieved Nation-wide impetus. Professional and lay interest was aroused. The control of these diseases, destructive of human life as they are, had been hampered by an ostrichlike attitude toward them. Now they have been brought out in the open and are being dealt with as other highly communicable and dangerous diseases. And well they should be, for syphilis alone ranks with cancer, tuberculosis, and pneumonia as a leading cause of death.

A landmark in medical history was established by the National Conference on Venereal Disease Control Work, held in Washington during December 1936, under the auspices of the Public Health Service. The press, magazines, and even the radio gave and are giving enormous publicity to the campaign.

The role of the Division of Venereal Diseases of the Public Health Service in combating these enemies of public health has been and will continue to be an active one. It is expected to serve as the guiding hand for the united effort of all agencies. Specifically, the following described activities have been developed:

### COOPERATIVE GROUP STUDIES

Experience indicates that medical knowledge pertaining to the diagnosis and control of venereal diseases can be advanced most effectively through the method of group investigation.

The original Cooperative Clinical Group, which has been working with the United States Public Health Service for a period of 10 years, has developed standardized treatment pro-

cedures for early syphilis and has made valuable contributions pertaining to the clinical management of latent and late syphilis. This group, consisting of the clinics of the University of Michigan, Western Reserve University, Mayo Clinic, University of Pennsylvania and the Johns Hopkins Hospital is continuing clinical investigations pertaining to conjugal syphilis, the prevention of prenatal syphilis, the efficacy of modern treatment in early syphilis, ocular syphilis with special reference to interstitial keratitis, and an endeavor to establish satisfactory criteria of diagnosis for cardiovascular syphilis.

A new study, the purpose of which is to determine the frequency with which syphilis is a primary or contributory cause of death, was begun during the past year.

A number of clinics and universities, in addition to the original Cooperative Clinical Group, are collaborating with the Division of Venereal Diseases in the study of special problems related to the control of syphilis and gonorrhea.

An advisory committee to the United States Public Health Service, composed of members of the American Neisserian Medical Society has been appointed for the purpose of developing more effective measures for the control of gonorrhea. This committee has drawn up recommendations for a control program, and important studies looking toward more effective measures for the control of this disease are in progress.

### SURVEYS OF SOURCES OF TREATMENT

To secure an approximate estimate of the prevalence, incidence and trend of syphilis and gonorrhea in this country, surveys which have been conducted by the Public Health Service in socially and geographically representative communities during the past decade were continued. From these surveys it has been determined that 518,000 new cases of syphilis and 1,037,000 cases of gonorrhea seek treatment each year. With regard to prevalence, it was found that there are approximately 683,000 persons with syphilis and 493,000

The United States Public Health Service medical center, located at Hot Springs, Ark., at which are treated indigent patients suffering from venereal disease.

On the first floor of this building at Hot Springs, Ark., the Public Health Service operates a large venereal disease clinic for indigents, while on the upper floor are located the baths under the jurisdiction of the National Parks Service.

persons with gonorrhea constantly under treatment and observation.

A mechanical system which will make available data to determine the trend of the venereal diseases and evaluate present-day treatment and control methods has been described by the Public Health Service. Demonstration projects in the use of this system are now in operation in several States.

### EVALUATION OF SERODIAGNOSTIC TESTS FOR SYPHILIS

In 1934, at the request of the American Society of Clinical Pathologists, the Surgeon General of the Public Health Service appointed a special committee to evaluate serodiagnostic tests for syphilis. There were 13 serologists who participated in this study, and their respective tests were evaluated upon the basis of their specificity and sensitivity. A later evaluation was carried out to determine the efficiency of the same tests as performed by State, municipal, and private laboratories. The results of this last study show that tests carried on in a fairly large number of the laboratories give rather poor results as compared with the efficiency of the same test as performed by the originator. However, it was shown that a routine test for syphilis can be performed with perfect specificity and a high degree of sensitivity in many of the laboratories.

In accordance with the recommendation of the Committee on Evaluation of Serodiagnostic Tests for Syphilis, the State public health laboratories are annually afforded an opportunity to evaluate their respective serodiagnostic procedures. Because of the importance attached to serodiagnostic tests in the diagnosis of syphilis, this annual evaluation study of such tests as performed in State laboratories is one of the most important functions of the Division of Venereal Diseases.

Under the auspices of the Committee on Evaluation of Serodiagnostic Tests for Syphilis, with Surgeon General Thomas Parran as chairman, an assembly of laboratory direc-

tors and serologists was held at Hot Springs National Park, Ark., October 21 and 22, 1938. The purpose of this assembly was to consider means and methods which could be used to make serologic tests for syphilis more reliable and less difficult to obtain. A total of 337 physicians, health officers, and laboratory workers from 44 States and the District of Columbia attended this meeting. The intense interest manifested in the scientific papers, committee reports, and discussions portends rapid progress in the development of better laboratories for the serodiagnosis of syphilis.

### CONTROL OF SYPHILIS IN RURAL AREAS

Provision of treatment for indigent persons residing in rural areas has been a difficult problem for State and local health departments. In an effort to ascertain the most practical and most economical methods of providing treatment for venereal diseases in such areas, the Public Health Service, in cooperation with the Georgia State Department of Public Health and the Brunswick District Health Department, is conducting a field study on the use of a traveling treatment unit in Camden, Glynn, and McIntosh Counties in southern Georgia. In these counties workers in the fishing, turpentine, and lumber industries are widely dispersed, doctors are few, and the income of neither whites nor blacks is sufficient for adequate modern syphilis treatment.

The results of 1 year's study indicate that the traveling treatment unit is a success in the control of syphilis among Negroes in rural sections of the South. Twenty-four trailer clinics have been established. Each clinic meets every week at the same time and place. Five hundred patients are treated each week. Blood tests have been obtained in schools, churches, factories, and homes. House-to-house blood testing has been found to be the most efficient way of finding syphilis. Eighty percent of the Negro population has been tested; twenty-six percent has been found to be infected with syphilis. Labora-

tory service for the necessary blood testing is provided at the branch State laboratory in Waycross, Ga.

In connection with the work of this traveling treatment unit, case-finding and case-holding activities are conducted by two social workers and two Negro nurses. Education has been promoted through personal talks, movies, literature, and through Negro preachers and school teachers. Case-holding activities have proven valuable; case-finding only partially so. Talking movies, lectures by Negro preachers, and pamphlets form the best educational media.

A similar unit has recently been placed in service in a rural section of North Carolina. Other States having similar problems are considering the traveling clinic as a possible solution.

### UNTREATED SYPHILIS IN THE NEGRO

The study of untreated syphilis in a group of male Negroes residing in Macon County, Ala., is being conducted in cooperation with the Milbank Memorial Fund, the Alabama State Department of Health, the Macon County Health Department, and the Tuskegee Normal and Industrial Institute. The purpose of this study is to record observations over a period of years on a group of 400 syphilitic male Negroes who have received no treatment, and a comparable group who have received adequate therapy. Autopsies are performed and pathological examinations made as death occurs among members of this group. No similar study of the effects of untreated syphilis over a period of years, correlated with the pathological findings at death, has ever been made. Final analysis of this study should ultimately provide a valuable contribution to medical science.

### LABORATORY RESEARCH

The laboratory for venereal disease research is located at the United States Marine Hospital at Staten Island, N. Y.

For demonstration purposes the Public Health Service maintains completely equipped trailers for the diagnosis and treatment of syphilis among the people residing in rural districts. The one above has operated successfully in three rural counties of Georgia.

The scope of the activities of this laboratory has been greatly expanded during recent years. In addition to carrying on basic scientific investigations, the laboratory participated in a number of field studies, thus making possible a correlation of clinical and field studies with basic experimental investigations. Such a correlation is essential for the advancement of medical science.

Among the important contributions made by this laboratory was the demonstration that *Spirochaeta pallida* remains viable and in most cases motile when transported as a specimen for diagnosis through the mails. This demonstration was the basis for the adoption of delayed darkfield examinations by a number of State health departments.

Studies pertaining to the prophylaxis of syphilis carried out on laboratory animals have demonstrated not only the effectiveness of prophylaxis when properly applied, but have proceeded a step further and indicated the mode of action of the prophylactic agent.

Detailed reports of studies conducted by this laboratory on the therapeutic efficacy of sulfanilamide in gonorrheal infections are a source of valuable scientific information on this new and promising treatment for gonorrhea.

Other studies now in progress will doubtless lead to the development of more effective and more economical methods in the prevention, treatment, and control of syphilis and gonorrhea.

### COOPERATION WITH STATE AND LOCAL HEALTH DEPARTMENTS

Because of the variations in the social and economic conditions in the various States, and even in individual communities within the States, it has been found impossible to formulate a definite set of principles for venereal disease control which will be adaptable to all. It has been possible, however, for the Public Health Service to recommend a control program which may be varied to suit local needs. These general recommenda-

tions include the following activities which it is hoped all States may provide in the cooperative fight against venereal diseases:

1. Establishment of a venereal disease unit in State health departments in close liaison with the communicable disease division but with a high degree of autonomy.

2. A full-time venereal disease control officer as director of this unit.

3. Free laboratory service for physicians, including the direct and indirect darkfield microscopic examinations, serologic tests, and examination of gonococcus smears.

4. The distribution of antisyphilitic drugs to physicians free of charge for all patients regardless of economic status.

5. A more concerted attempt to obtain complete morbidity and mortality reports.

6. The development of an efficient epidemiologic program for case finding and case holding, to include investigation of sources and contacts and the holding of lapsed infectious cases under treatment.

7. The formulation of an educational and informative program for physicians and for the public.

Social Security funds made available to the States through the Public Health Service for general public health measures have made it possible for a number of States to expand and develop their existing facilities for the control of syphilis and gonorrhea. However, because of the great prevalence of venereal disease, many State health departments still found their funds insufficient to cope with the problem. The efforts of more fortunate States which were able to establish satisfactory measures for the control of syphilis and gonorrhea were to a large extent nullified by the ingress of venereally infected persons from adjacent communities.

The Venereal Disease Control Act, signed by the President on May 24, 1938, established the movement to control syphilis and gonorrhea in the United States on a permanent, national basis. This legislation authorizes the appropriation of Federal

funds not to exceed specified sums for the fiscal years 1939, 1940, and 1941 and thereafter such sums as may be deemed necessary to carry out the purposes of the act. The sum of 3 million dollars was made available for the fiscal year 1939 for the purpose of assisting States and political subdivisions of the States in establishing and maintaining adequate measures for the prevention, treatment, and control of the venereal diseases, and for the purpose of making studies, investigations, and demonstrations to develop more effective measures of prevention, treatment, and control of the venereal diseases, including the training of personnel.

Federal grants to the States under this act will equalize, to some extent, the distribution of funds for the control of venereal diseases, and will enable the less wealthy States to establish more effective measures for the control of syphilis and gonorrhea.

The Public Health Service has assigned trained commissioned officers as regional venereal disease control officers to assist the State health departments in connection with the organization and expansion of their venereal disease control activities. In addition, commissioned officers are assigned to act as advisory venereal disease control officers in the States from time to time in order to give special assistance to the State health officer. Commissioned officers have been assigned to duty with several city health departments to coordinate venereal disease control activities in large metropolitan areas.

Federal funds allotted to the States have made possible the establishment of facilities for the training of physicians in the clinical management and public health control of syphilis and gonorrhea at a number of medical schools.

The expansion of venereal disease control activities in a number of States and localities during recent years is evidenced by the increase in the number of new cases of syphilis and gonorrhea reported to State health departments; the increase in the number of clinics which are submitting morbidity

reports; the increase in the number of cases discharged as arrested or cured; and the increase in the total number of treatments administered.

### EDUCATIONAL ACTIVITIES

The many requests for talks, informative literature, and exhibit material received from community organizations and influential citizens throughout the country are indicative of the widespread interest in the venereal disease problem. The Division of Venereal Diseases has prepared a number of exhibits on syphilis, including motion-picture films, for both physicians and laymen. These are available to health officers and interested groups on a loan basis.

Venereal Disease Information, issued monthly by this Division, continues to enjoy the distinction of having the largest paid subscription of any Government publication. A number of supplements and reprints from Venereal Disease Information pertaining to the diagnosis and treatment of venereal diseases have been published and are furnished free to physicians upon request. Many articles suitable for the general public have been prepared in the form of pamphlets and also for publication in magazines, newspapers, and trade journals. A new venereal disease folder, Syphilis, Its Cause, Its Spread, Its Cure, prepared during the past year met with favorable response. Fifty thousand copies were distributed free to health officers, private physicians, and others. Over 800,000 copies have been purchased from the Government Printing Office by industrial organizations, private physicians, and State health departments.

During the past 2 years numerous talks on the public health control of syphilis and gonorrhea have been presented to medical and lay groups, and the facilities of national radio hook-ups have been made available for the dissemination of information on these topics.

The Venereal Disease Medical Center, operated by the United States Public Health Service at Hot Springs National Park, Ark., consists of an out-patient clinic to which indigent patients who have sufficient funds available to provide meager lodgings for themselves may come, and an infirmary operated for patients who are totally indigent.

This medical center, in cooperation with the free Government Bathhouse of the National Park Service, performs an important function in preventing the interstate spread of venereal diseases. The 6,486 indigent persons who presented themselves to this center for medical care during the fiscal year 1938 represented practically every State in the Union. Of these applicants 3,941, or 61 percent, were afflicted with a venereal disease. Three hundred and ninety-nine of these persons had two or more specific infections, making a total of 4,340 cases of venereal disease. Among the various infections recorded were 2,863 cases of syphilis, 1,078 cases of gonorrhea, 88 chancroid, 22 lymphopathia venereum, and 12 granuloma inguinale. By providing treatment for these indigent persons until they were no longer infectious, many new cases of syphilis and gonorrhea were prevented. In addition, the facilities of this medical center, with its wealth of clinical material, are utilized to good advantage for the training of health officers and private physicians in the diagnosis and clinical management of the venereal diseases.

### NARCOTIC HOSPITALS

BY AN ACT approved January 19, 1929, Congress authorized the establishment of two narcotic farms, now known as United States Public Health Service Hospitals, for the confinement and treatment of persons addicted to the use of habit-forming drugs. One of the hospitals is located at Lexington, Ky., and the other at Fort Worth, Tex. Both are in operation, and additions are being made which, when completed, will give them a combined capacity of 2,400 patients.

The act authorizing these two institutions created within the office of the Surgeon General of the Public Health Service an administrative and investigative division then called the "Narcotics Division," which was charged in law with the administration of the two narcotic hospitals; with studies of the nature of drug addiction and the best methods of treatment and rehabilitation of persons addicted to habit-forming drugs; with the dissemination of information on the best methods of treatment and research; and with cooperation with State and local jurisdictions with a view to developing facilities for the care and treatment of narcotic addicts.

The main purpose of the act which authorized the establishment of these two hospitals was to provide facilities to rehabilitate, restore to health, and train to be self-supporting and self-reliant persons who are addicted to narcotic drugs, but an extensive program of research into the nature, causes, and treatment of drug addiction is also carried on in them. Addicts to opium, cocaine, cannabis indica, or peyote, or to any preparations or derivatives of these four drugs, are eligible for treatment.

The majority of the patients are offenders against the United

Administration building of the Public Health Service hospital for the care, treatment, and rehabilitation of drug addicts, located near Lexington, Ky. In this 1,000-bed institution both medical treatment and useful occupations are combined in an effort to rehabilitate the patients. A similar hospital was recently opened at Fort Worth, Tex.

States who were formerly taken care of in prisons, but provision is also made for the admission of voluntary cases. Persons addicted to the use of habit-forming drugs, especially opium or its derivatives, seek cure for a variety of reasons. Many prisoners are not cooperative, and voluntary patients who sincerely seek treatment often change their minds with the approach of withdrawal symptoms. Constant vigilance is therefore fundamental in the development of a program for treatment, and, because of the prisoners, artificial barriers are necessary in these institutions.

tions are combined in an effort to rehabilitate the patients. A similar hospital was recently opened at Fort Worth, Tex.

### DRUG ADDICTS

The actual number of drug addicts in the United States is an unknown quantity, because narcotics are usually taken in secret. Various estimates have been made, and much of the popular writing of the day undoubtedly tends to exaggerate the evil effects of the so-called demon flower. Any estimate greater than 200,000 is a very liberal one and is believed to be beyond reasonable probability. The Public Health Service estimated in 1924 that there were 110,000 addicts in the United States, or approximately 1 in each 1,100 persons. According to the best available evidence the number has not increased, but the estimates referred to addicts to opiates and cocaine. Since that time marihuana (cannabis indica) has come into the picture. There are no available estimates as to the number of addicts to this drug.

One of the most important precipitating causes of drug addiction is ease of access to the drug and contact with other addicts. From the standpoint of origin, drug addicts may be divided into two groups, namely, pure dissipators and medically addicted individuals. The latter have shown a gradual decline in numbers in recent years. In two studies made by the Public Health Service, the proportion claiming addiction by medical means was 14 and 15 percent, respectively. In another study made by the Service of 1,036 cases, the age range

at the time of addiction was from 11 to 60, the average being 27.53 years. All classes of society, all ranges of intelligence, and all occupations were represented, the determining factor in addiction being the degree of nervous stability and environmental accidents.

For purposes of description drug addicts may be classified under two general headings, namely, the nervously normal, who comprise a small but variable proportion, and the nervously abnormal. The nervously normal individuals become addicted in the course of medication for the treatment of disease. They are easily cured when the cause for the original medication is relieved. The nervously abnormal start through curiosity or in search of a thrill. They find in narcotics a relief from certain emotional difficulties, and are much more difficult to cure because the sense of ease and calm that narcotics give them contrasts so strongly with their usual feelings of inferiority and distress. Desire for a repetition of these sensations impels them to seek narcotics for the relief that they do not know how to get in any other way. Many of these persons are definitely neurotic, some are psychopathic, and a large proportion are recruited from among drunkards. These people are seriously handicapped by their addiction and the social consequences resulting from it, but a large proportion of them can be restored to usefulness by relieving them of the necessity for narcotics. In many addicts who fail to be cured the addiction is a complication of an established delinquency.

Not all neurotic or unstable individuals become addicted to the use of habit-forming drugs. All of them are susceptible but many find refuge through other more or less sublime channels. While some of them are inefficient, many lead useful lives and contribute no little to the fields of art and literature. Various experiences indicate that a drug addict with a normal mental background will not continue as a drug addict, as narcotism is unnecessary for the comfort of one who enjoys that satisfaction

which comes from good mental health. Nor will drug addiction produce in such an individual the so-called degeneration and lack of responsibility seen in addicts of a temperamental, neurotic, or psychopathic constitution.

## TREATMENT

In the treatment of drug addiction it is first necessary to get the patient over the withdrawal symptoms and then to rehabilitate him by various methods designed to give him a new outlook on life so that instead of blotting out his difficulties by the use of narcotics, he is able to face them in a normal way. In order to do this, a certain amount of confinement away from the temptation of narcotics is necessary, during which time new habits are built up through work and recreation and a new philosophy of life is instilled by appropriate psychotherapy. The majority of persons now addicted to habit-forming drugs are, in fact, mentally ill although not psychotic, and efforts to rehabilitate them must be through a mental health approach.

This fact was recognized by the Congress of the United States, for on June 14, 1930, the name of the Narcotics Division of the Public Health Service was changed to "Division of Mental Hygiene." All the authority, powers, and functions exercised by the Narcotics Division were transferred to the Division of Mental Hygiene, and the scope of functions and activities of the newly created division were enlarged. Thus the Division of Mental Hygiene is charged with making studies and investigations of the abusive use of narcotic drugs and the quantities necessary to supply the normal and emergency medical and scientific requirements of the United States. It is also charged with making studies and investigations of the causes, prevalence, and means for the prevention and treatment of mental and nervous diseases. In other words, special provision for the care of the narcotic addict is but a small part of that large and important problem of mental hygiene.

Since 1914 the Public Health Service has been engaged from time to time upon special studies and investigations concerning the relationship of mental and nervous disorders to the public health. Such investigations and studies have embraced the field of clinical pyschiatry; administrative experiences in connection with the operation of institutions especially devoted to the care and treatment of mental diseases; administrative and investigative activities with reference to the mental phase of immigration work; and special field studies and investigations in institutions devoted to the care of dependent, delinquent, and criminal groups. Special field investigations have also been made in communities and political subdivisions of the United States with reference to the prevalence of mental disease and the needs and social situation of the mentally disordered population.

It is not generally appreciated that mental illness constitutes one of the large and important medical, social, economic, and health problems of the country. Its solution rests in part upon a more equal distribution of measures and facilities for providing adequate and early treatment and care for adverse mental situations arising in the community. It rests in part upon a better understanding of the nature and causes of mental ill health; upon training competent personnel to handle the various phases or aspects of the problem; the evolution of a scientific method for the control of such diseases; and solving the economic problems associated with mental illness. It also involves coordinating present knowledge of mental hygiene with the activities of State and local health organizations, enlistment of the cooperation of educational agencies, the legal profession, and sociologists in promoting good mental health.

The importance of the mental health problem may be indicated by the fact that more than half a million persons are in public mental hospitals in the United States, and that every

stage in the evolution of the care of the insane may be found represented somewhere in the United States today; that more than 100,000 first admissions are received at public mental hospitals during any given year; and that the number of mental patients in such hospitals is increasing at the rate of 14,000 a year. In every 1,000 persons in the general population of the United States approximately 4 are in public institutions for mental diseases, and about one-half million children now in public schools may be expected to suffer a "mental breakdown" at some time in the future unless concerted preventive measures can be inaugurated and undertaken.

Many people have the idea that mental illness always denotes "insanity," that the condition requires isolation through legal proceedings or family action, and that all such people are violent "lunatics." This is far from true. Mental illness also includes feeblemindedness, epilepsy, behavior problems that are the outcome of habits and misunderstandings in dealing with a person's environment, "nervous" disorders, and many other conditions now classed as dependency and habitual delinquency.

In an effort to bring about, under medical leadership, an improvement in those measures and facilities for early recognition and treatment of mental illness in the United States a start has been made through the organization of a committee composed of representatives of eight national medical organizations of the United States and Canada.

There is evident need for a greater uniformity in mental health administration in the United States. This uniformity may be encouraged by a national health agency, such as the Public Health Service, by becoming a depository for the collection and dissemination of information pertaining to mental health administration; by making studies and investigations as to the needs of the mentally ill; and by making available to States and political subdivisions thereof a consultant service to the end that more adequate and uniform measures may be

adopted for the amelioration or prevention of mental illness. Work of this nature is now being carried on by the Service to a limited extent through the Division of Mental Hygiene. Its furtherance bears a definite relation to its activities in relation to States under the Social Security Act.

Furthermore, authority already exists for the Public Health Service to conduct research studies in mental diseases and mental health, as they relate to the causes, prevalence, means for the prevention, and methods of treatment of mental illness. These activities may be extended to provide a depository for the collection and dissemination of information on various research projects undertaken by other agencies by correlating and coordinating efforts of the Service.

There is need, perhaps, for better coordination and greater uniformity in administrative policies respecting matters in mental hygiene as they affect the various departments of the Federal Government. The Public Health Service may serve as the coordinating medical agency to bring about greater uniformity in this particular governmental interest.

### MEDICAL RELIEF IN FEDERAL PRISONS

On May 13, 1930, the President approved an act of Congress authorizing that medical relief, under the Department of Justice, in Federal penal and correctional institutions shall be supervised and furnished by personnel of the Public Health Service. This service, which is administered through the Division of Mental Hygiene, is now being furnished to 22 such institutions.

Another act of the Seventy-first Congress, second session, approved by the President on May 13, 1930, authorizes the establishment of a hospital for the care and treatment of all persons charged with or convicted of offenses against the United States, who are in actual custody, and during their detention or confinement are, or shall become, insane, afflicted with an incurable or chronic degenerative disease, or so defec-

tive mentally or physically as to require special medical care and treatment not available in existing Federal institutions. This hospital is located at Springfield, Mo.

Important medical problems arise in connection with the care of Federal prisoners. These may be considered under the headings of routine requirements and of research activities. The routine requirements involve the psychiatric examination and classification of all inmates, and physical examinations that will permit of prompt recognition and correction of physical defects and diseases among prisoners.

It is obvious that the Public Health Service is interested in the investigative and the administrative possibilities which the laws provide.

### SERVICES TO FEDERAL COURTS

Psychiatric diagnostic services are being furnished to certain Federal district courts where such services seem practicable and most helpful. This service is intended to assist the court to determine the mental status of a defendant as one element in the problem of the disposition of the case.

## DIVISION OF
## *Personnel and Accounts*

EVERY ORGANIZATION which operates over a wide geographic area needs a central control office, a nerve center, so to speak, which directs the movements of the distant members; and so the United States Public Health Service, which has the earth and the air above and the waters, if any, underneath the earth, for its sphere of activity, has a dispatcher's office in the guise of its Division of Personnel and Accounts. It is through this Division that each of the more than 7,000 men and women who comprise the personnel of the Service came into the organization; and it is through this office that these same men and women are moved about in the great game which the Public Health Service plays with disease as its opponent and the world as its chess board.

Being a mobile organization and required to meet public health emergencies, the Public Health Service is organized and conducted under strict disciplinary rules. This necessitates adequate central control and means to attend to the mechanics of movements and other matters affecting personnel. In fact, there must be some specific office charged with the keeping of records of appointments, promotions, discontinuances, leaves of absence, changes of station, and maintenance of discipline in accordance with the laws and regulations on the subject. It is the Division of Personnel and Accounts which does all these things for the Public Health Service. In addition, the Division looks after the preparation of estimates of appropriations to carry on activities, recommends apportionments of appropriations in conformity with law, makes allotments to conduct the several activities, and maintains records of all finances and expenditures.

There are thousands of items of material, services, and supplies to be bought for widely scattered field stations, hospitals, quarantine and immigration stations in this and foreign countries. These acquisitions of property, services, or supplies necessarily require carefully kept records. There are many steps in procuring an appropriation and in spending it. After it is spent, there still remain the items of property that have been bought which must be accounted for in the property section of the Division of Personnel and Accounts. Every article which the Service uses, whether a pair of scissors, a microscope, or an ambulance, must be properly accounted for at the time it is purchased and until it is worn out and condemned for further use. Numerous vouchers must be audited after the purchase of equipment and supplies and thousands of pay rolls for personal services must have immediate and careful attention.

Probably the most far-reaching and important single function of the Public Health Service from an administrative standpoint is that lodged in the Personnel Section of this Division. After the bricks and mortar have been furnished, buildings completed, and equipment supplied the Personnel Section must supply the men and women to do the work. In estimating final results and work accomplished the personnel is vastly more important than the physical equipment and the buildings in which work is done. This Division handles the recruiting of commissioned personnel, and by assigning young officers to the various Service activities gives them experience in the more important duties they will be called upon later to perform. It is this training and experience that enables officers of the Public Health Service to make investigations of far-reaching importance and to engage in highly technical investigations affecting the public health.

### QUALIFICATIONS AND APPOINTMENTS

A candidate for appointment in the regular corps is required to pass a thorough examination before a board of commis-

sioned officers. These examinations are held at intervals in various large cities of the United States for those candidates who, after application, have been invited by the Surgeon General to participate. The examinations consist of oral, written and laboratory tests necessary to determine the candidate's mental and physical aptitude, as well as professional attainments. The Service makes no allowance for the expenses of candidates appearing for examination.

Graduates in medicine, dentistry, or public health engineering, if they are eligible, may apply for appointment as vacancies occur. Those who desire to enter in the grade of assistant surgeon must be between the ages of 23 and 32. Those who have the qualifications for entrance in the grade of passed assistant surgeon must not be over 39 years of age. An average of 80 percent in all branches is required for eligibility. Appointments are made by the President on recommendation of the Surgeon General and subject to confirmation by the Senate. When this confirmation has been given, the candidate is issued a commission in the grade of assistant surgeon or passed assistant surgeon and is assigned to duty.

At this point in the career of the young Public Health Service officer it becomes the duty of the Division of Personnel and Accounts to see that he is given such assignments as will provide him with a well-balanced experience, necessary to the solution of larger problems while he remains in the Service. So far as practicable, during the first 4 years he is in the Service, the young medical officer is detailed for duty at a marine hospital, a quarantine station, an immigration station, the National Institute of Health, and in public health work in the field.

The length of time the officer spends on each detail depends upon his previous training and the exigencies of the Service. Where possible and within limits, consideration is given to the preference of the individual officer.

After 3 years' comissimoned service, those in the grade of assistant surgeon are eligible for promotion, after examination,

to the grade of passed assistant surgeon, except assistant pharmacists, who are required to serve 5 years before promotion to this grade, which is the senior grade for pharmacists.

Passed assistant surgeons, after 12 years' commissioned service, may be promoted to the grade of surgeon.

Promotion to the grade of senior surgeon is made after 20 years' service and to the grade of medical director after 26 years' service.

Before such promotions are made, the officer is required to pass a physical and professional examination, and his record must be found satisfactory on review by a board of commissioned officers.

The pay of commissioned officers of the Public Health Service ranges from $2,699 for the grade of assistant surgeon to $7,179 for a medical director, or assistant surgeon general, both without dependents. For officers having dependents, the range is from $3,158 to $7,200.

The Surgeon General receives $9,700 if he has dependents and $9,179 if he has none.

These salaries are established by the same law which fixes those of officers of the Army and Navy. The grades are comparable to those of commissioned officers of the Army and Navy.

All other personnel of the Public Health Service is selected from lists of eligibles established by the Civil Service Commission under civil service law and regulations.

The present is an age of specialization, particularly in the field of medicine and sanitation, and thus it happens that within the Service there are groups of officers having special qualifications for solving particular problems. Some of these officers may be devoting their time regularly to investigations of communicable diseases, nutritional diseases, the health hazards of industry, or other public health problems; but when an emergency arises in any district, selection and detail of personnel must be made to meet it. In such cases the Division of Personnel and

Accounts is the channel through which the Surgeon General transmits his orders. All epidemic and other emergent situations are met in this manner. These movements of personnel are limited as much as possible, however, by the policy of having officers with all-around training so distributed as to meet emergency situations as they arise.

The Public Health Service endeavors to meet the apparently ever-increasing trend in specialization. The Service has plenty of clinical work to do and many hospitals to operate. It has quarantine and immigration duties. There are large laboratories to operate. There is much original investigative work and research study to be done. There is a large and important function in the aid and development of State and local health organizations. At present there are newer and even larger problems presented by a rapidly advancing social consciousness and the attending economic adjustment. Many persons are unable to provide themselves with adequate medical care. There are too few available hospital beds. Many problems have arisen in connection with the numerous old-age pension plans, health insurance, disability compensation, industrial health hazards, and many other factors which have a bearing on the health of the Nation. The Division of Personnel and Accounts is expected to find young doctors and give them a general grounding in many or all of these various activities. Most of these newly selected physicians will go forward as the "general practitioners" of public health and a few will be the "specialists" in the respective fields of public health.

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